



ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: RB211-535E4B BYPASS RATIO: 4.1
 UNIQUE ID NUMBER: 3RR034 PRESSURE RATIO (π_{00}): 27.7
 COMBUSTOR:
 ENGINE TYPE: MTF RATED THRUST (F_{00}) (kN): 191.7

REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NO _x	SMOKE NUMBER
D _p /F ₀₀ (g/kN) or SN	0.7	24.1	89.2	2.4
AS % OF ORIGINAL LIMIT	3.6	20.5	93.6	12.1
AS % OF CAEP/2 LIMIT (NO _x)			117.0	
AS % OF CAEP/4 LIMIT (NO _x)			141.0	
AS % OF CAEP/6 LIMIT (NO _x)			160.3	
AS % OF CAEP/8 LIMIT (NO _x)			190.6	

DATA STATUS

- PRE-REGULATION
 - CERTIFICATION
 x REVISED (SEE REMARKS)

TEST ENGINE STATUS

- NEWLY MANUFACTURED ENGINES
 x DEDICATED ENGINES TO PRODUCTION STANDARD
 - OTHER (SEE REMARKS)

EMISSIONS STATUS

x DATA CORRECTED TO REFERENCE
 (ANNEX 16 VOLUME II)

CURRENT ENGINE STATUS

(IN PRODUCTION, IN SERVICE UNLESS OTHERWISE NOTED)
 x OUT OF PRODUCTION (DATE: -)
 - OUT OF SERVICE (DATE: -)

MEASURED DATA

MODE	POWER SETTING (%F ₀₀)	TIME (minutes)	FUEL FLOW (kg/s)	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
				HC	CO	NO _x	
TAKE-OFF	100	0.7	2.080	0.01	0.94	54.46	1.7
CLIMB OUT	85	2.2	1.650	0.00	0.60	36.82	1.8
APPROACH	30	4.0	0.550	0.03	1.05	7.35	1.0
IDLE	7	26.0	0.190	0.28	11.76	3.52	0.5
LTO TOTAL FUEL (kg) or EMISSIONS (g)			734	88	3837	14791	-
NUMBER OF ENGINES				1	1	1	1
NUMBER OF TESTS				3	3	3	3
AVERAGE D _p /F ₀₀ (g/kN) or AVERAGE SN (MAX)				0.5	19.7	77.0	1.8
SIGMA (D _p /F ₀₀ in g/kN, or SN)							
RANGE (D _p /F ₀₀ in g/kN, or SN)				0.41-0.49	19.35-19.92	75.9-77.9	1.5-2.2

ACCESSORY LOADS

POWER EXTRACTION 0 (kW) AT - POWER SETTINGS
 STAGE BLEED 0 (% CORE FLOW) AT - POWER SETTINGS

ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	98.8
TEMPERATURE (K)	282
ABS HUMIDITY (kg/kg)	0.0037

FUEL

SPEC	AVTUR
H/C	1.9
AROM (%)	18.2

MANUFACTURER: Rolls-Royce plc
 TEST ORGANIZATION: Rolls-Royce plc
 TEST LOCATION: SINFIN-Derby
 TEST DATES: 01/04/1991

REMARKS

1. Data from Certification Report DNS21233

Compliance with Fuel Venting requirements: - ('x' if complies, 'PR' if pre-regulation, '-' if information is not available)